CLAIMS:

1. An electric power steering apparatus comprising:

an electric motor for generating steering assist force;

a reduction gear mechanism for reducing a rotation speed of an output shaft of the electric motor; and

a conversion mechanism for converting the output rotation of the reduction gear mechanism into an axial movement of a steerable shaft extending in a transverse direction of a vehicle,

the reduction mechanism comprising:

an inscribed gear having external teeth and being rotatable interlockingly with the output shaft of the electric motor;

a circumscribed gear having internal teeth in which the inscribe gear is inscribed;

a driving pulley integrally rotatable with the circumscribed gear;

a driven pulley disposed so as to surround the steerable shaft; and

an endless belt for connecting the driving pulley and the driven pulley.

2. An electric power steering apparatus according to claim 1, in which the reduction gear mechanism further comprises an input shaft for transmitting a driving force through the

inscribed gear and the circumscribed gear to the driving pulley.

3. An electric power steering apparatus according to claim 2, in which the inscribed gear is provided on a circumference of a part of the input shaft.

4. An electric power steering apparatus according to claim 3, in which the input shaft comprises a shaft formed as one piece integrally with the inscribed gear.

5. An electric power steering apparatus according to claim 2, 3 or 4, in which the driving pulley is in the shape of a cylinder and has a first end portion and a second end portion, the first end portion of the driving pulley being closer to the output shaft of the electric motor than the second end portion, and at least the first end portion of the driving pulley being opened.

6. An electric power steering apparatus according to claim 5, in which the circumscribed gear is provided on an inner circumference of the driving pulley.

7. An electric power steering apparatus according to claim 6, in which the driving pulley comprises a pulley formed as one piece integrally with the circumscribed gear.

8. An electric power steering apparatus according to claim 5, 6 or 7, further comprising

a housing for containing the inscribed gear, the circumscribed gear and the driving pulley, and

a driving pulley support means held by the housing for

supporting the driving pulley rotatably about a central axis line of the driving pulley.

9. An electric power steering apparatus according to claim 8, in which

a support shaft is formed as extending from the second end portion of the driving pulley along the central axis line of the driving pulley, and

the driving pulley support means comprises a bearing for rotatably supporting the driving pulley through the support shaft.

10. An electric power steering apparatus according to claim 8 or 9, in which

the input shaft comprises a first end portion, a second end portion and an intermediate portion,

the first end portion of the input shaft being connected to the output shaft of the electric motor on a same axis line so as to transmit torque thereto,

the inscribed gear being provided on an outer circumference of at least the second end portion of the input shaft, and

the intermediate potion of the input shaft comprising a portion rotatably supported by a bearing held by the housing.

11. An electric power steering apparatus according to any one of claims 1 to 10, in which a center to center distance between the driving pulley and the driven pulley is shorter than a center

to center distance between the inscribed gear and the driven pulley.

12. An electric power steering apparatus according to claim 5, 6 or 7 in which a center to center distance between the driving pulley and the driven pulley is shorter than a center to center distance between the inscribed gear and the driven pulley, and the driving pulley is swingably supported by the inscribed gear.

13. An electric power steering apparatus according to claim 12, further comprising a housing for containing the inscribed gear, the circumscribed gear and the driving pulley,

the driving pulley having a through hole opened at the first end portion and the second end portion thereof,

the input shaft comprising a penetrating shaft penetrating through the through hole of the driving pulley, and

the penetrating shaft comprising a pair of parts extending to both sides respectively with the driving pulley interposed therebetween, and the pair of parts of the penetrating shaft being rotatably supported respectively by corresponding bearings held by the housing.

14. An electric power steering apparatus according to claim 13, further comprising a pair of guide parts opposed to the first and second end portions of the driving pulley respectively for restricting an axial movement and rotational rocking of the driving pulley and guiding a rotation of the driving pulley.

15. An electric power steering apparatus according to claim

14, in which the housing comprises an opening for passing the endless belt therethrough, and the pair of guide parts are provided at the edge portions of the opening.

16. An electric power steering apparatus according to any one of claims 1 to 7, further comprising

a housing for containing the inscribed gear, the circumscribed gear and the driving pulley,

the housing containing the driving pulley comprising a connection housing integrally formed with a housing of the electric motor and attached to a housing of the reduction gear mechanism, and

a part of the connection housing being inserted into the housing of the reduction gear mechanism.

17. An electric power steering apparatus according to any one of claims 1 to 16, in which the endless belt comprises a toothed belt, and the driving pulley and the driven pulley comprise toothed pulleys.